

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2004/002138

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: C12M 3/00; C12N 5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC7: C12M 3/00; C12N 5/00

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Canadian Patent Database, Delphion, WEST, Pubmed, USPTO, Esp@cenet

Search terms: device, apparatus, bioreactor, one-dimensional, cell, tissue, culture, monolayer, spacers, spacing, barriers, microfluidal, network, patterning, chemical, morphological, micropatterning, microchannel, biomimetic, embossing, PDMS, microvalve, hydrogel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	LI S et al Effects of morphological patterning on endothelial cell migration. BIORHEOLOGY 2001 38:101-108 Whole document	1, 2, 4, 6-8, 11-16, 19, 23, 24, 27, 28, 32, 34, 38, 39, 44, 46, 49-52, 54-56, 60, 62, 66, 67, 72, 74, 77-80, 82, 84, 87, 88, 92, 94, 98, 99, 106, 111-117
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110
X	MATA A et al Analysis of connective tissue progenitor cell behavior on polydimethylsiloxane smooth and channel micro-textures. BIOMED MICRODEVICES 2002 4(4):267-275 Whole document	1, 2, 4, 6-8, 11-16, 19, 23, 24, 27, 28, 32, 34, 38, 39, 44, 46, 49-52, 54-56, 60, 62, 66, 67, 72, 74, 77-80, 82, 84, 87, 88, 92, 94, 98, 99, 106, 111-117
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110

Further documents are listed in the continuation of Box C.

See patent family annex.

• Special categories of cited documents :	
“A” document defining the general state of the art which is not considered to be of particular relevance	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
“B” earlier application or patent but published on or after the international filing date	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
“O” document referring to an oral disclosure, use, exhibition or other means	“&” document member of the same patent family
“P” document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

04 April 2005 (04-04-2005)

Date of mailing of the international search report

10 May 2005 (10-05-2005)

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	DERTINGER SKW et al Gradients of substrate-bound laminin orient axonal specification of neurons. PROC NATL ACAD SCI USA 01.10.2002 99(20):12542-12547 Whole document	1, 2, 4-8, 11-19, 23, 24, 27, 28, 32, 34, 38, 39, 44, 46, 49-52, 55, 56, 60, 62, 66, 67, 72, 74, 77-80, 82-84, 87, 88, 92, 94, 98, 99, 106, 111-117
Y		3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110
X	TAYLOR AM et al Microfluidic multicompartment device for neuroscience research. LANGMUIR (Advance article) 04.12.2002 DOI:10.1021/la026417v [retrieved on 04.04.2005]. Retrieved from the Internet: <URL: <a 487="" 923="" 938"="" 96="" data-label="Page-Footer" href="http://nljgroup.eng.uci.edu/Articles>Anne%202003.pdf>
Whole document</td><td>1, 2, 4, 6-8, 11-16, 19, 23, 24, 27, 28, 32, 34, 38-40, 44, 46, 49-52, 55, 56, 60, 62, 66-68, 72, 74, 77-80, 82-84, 87, 88, 92, 94, 98, 99, 100, 104, 106, 111-119</td></tr> <tr> <td>Y</td><td></td><td>3, 14, 17, 20, 22, 24-26, 29-31, 43, 45, 48, 52-54, 56-59, 71, 73, 76, 84-86, 89-91, 103, 105, 108-110</td></tr> <tr> <td>X</td><td>US5976826 A
(PRESIDENT AND FELLOWS OF HARVARD COLLEGE, US)
02.11.1999
Whole document</td><td>1, 4, 6-8, 11-16, 19, 21-24, 27, 28, 32, 42, 46, 49-52, 55, 56, 70, 77-80, 82-84, 87, 88, 92, 102, 104, 106, 109, 111</td></tr> <tr> <td>Y</td><td>YU Q et al
Responsive biomimetic hydrogel valve for microfluidics.
APPL PHYS LETT 23.04.2001 78(17):2589-2591
Whole document</td><td>17, 26, 43, 54, 71, 86, 103</td></tr> <tr> <td>Y</td><td>EGGINS BR
Chemical Sensors and Biosensors. Analytical techniques in the sciences.
2002 John Wiley & Sons, New York., 273pp.
Chapter 5: Electrochemical sensors and biosensors</td><td>14, 20, 29-31, 56-59, 89-91</td></tr> <tr> <td>Y</td><td>WHITESIDES GM
The 'right' size in nanobiotechnology.
NAT BIOTECHNOL 10.2003 21(10):1161-1165
Page 1161, second column, fourth paragraph; page 1163, second column, last paragraph through page 1164, first column, fifth paragraph</td><td>3, 14, 20, 29-31, 56-59, 89-91</td></tr> <tr> <td>Y</td><td>TAKAYAMA S et al
Patterning cells and their environments using multiple laminar fluid flows in capillary networks.
PROC NATL ACAD SCI USA 05.1999 96:5545-5548
Whole document</td><td>24, 25, 48, 52, 53, 76, 84, 85, 108</td></tr> </tbody> </table> </div> <div data-bbox="> <p>Form PCT/ISA/210 (continuation of second sheet) (January 2004)</p> 	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
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Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
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US5976826 A	02-11-1999	US5776748 A US5976826 A US6368838 B1 US2002094572 A1	07-07-1998 02-11-1999 09-04-2002 18-07-2002
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